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JC923 U.S. PTO

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October 17, 2000

**BOX PATENT APPLICATION**  
Assistant Commissioner for Patents  
Washington, D.C. 20231

JC960 U.S. PTO  
09/688711  
10/17/00

Re: Application of **Olivier WALTER** and **Helene BACHATENE**

**TELECOMMUNICATIONS EQUIPMENT**  
Our Ref. Q61269

Dear Sir:

Attached hereto is the application identified above including 7 sheets of the specification, claims and abstract, 2 sheets of formal drawings, executed Assignment and PTO 1595 form, and executed Declaration and Power of Attorney. Also enclosed is the Information Disclosure Statement.

Please see attached preliminary amendment before calculating Government filing fee.

The Government filing fee is calculated as follows:

Total claims	<u>2</u> - 20	=	<u>0</u>	x	\$18.00	=	<u>\$0.00</u>
Independent claims	<u>1</u> - 3	=	<u>0</u>	x	\$80.00	=	<u>\$0.00</u>
Base Fee							\$710.00
<b>TOTAL FILING FEE</b>							<b>\$710.00</b>
Recordation of Assignment							\$40.00
<b>TOTAL FEE</b>							<b>\$750.00</b>

Checks for the statutory filing fee of \$710.00 and Assignment recordation fee of \$40.00 are attached. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 and any petitions for extension of time under 37 C.F.R. § 1.136 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

Priority is claimed from October 28, 1999 based on French Application No. 9913498. The priority document is enclosed herewith.

Respectfully submitted,  
SUGHRUE, MION, ZINN,  
MACPEAK & SEAS, PLLC  
Attorneys for Applicant

By: David J. Cushing  
David J. Cushing  
Registration No. 28,703

## TELECOMMUNICATIONS EQUIPMENT

The invention relates to telecommunications equipment and in particular to switching center call control equipment.

## 5 BACKGROUND OF THE INVENTION

Figure 1 is a diagram which summarizes the architecture of a telecommunications network enabling a telecommunications terminal TE1 to communicate with a terminal TE2.

10 An equipment TE1 is connected to a switch SW1 of an operator O1. The switch SW1 is connected to a switch SW2 of the same operator, for example, which is connected to a switch SW3 of an operator O2. A terminal TE2 is connected to the switch SW3.

15 Accordingly, calls between the terminals TE1 and TE2 are processed by telecommunications equipments for which the signaling standards are not necessarily the same.

20 Switching centers (also referred to as switches) such as the equipments SW1, SW2, SW3 are therefore provided in the network. In practice there is no reason for them to be from the same supplier or operator. Thus the network can route data streams, voice streams and control streams.

25 The control stream is concerned with call protocols. For call protocols there are several standards, including the B-ISUP standard of the International Telecommunication Union (ITU), the PNNI standard of the ATM (Asynchronous Transmission Mode) Forum and the SS7 standard of the European  
30 Telecommunications Standards Institute (ETSI).

The architecture of a switching center (also referred to as a switch) comprises various S1 modules, including:

- 35
- a signaling processing module CA,
  - a call control module, and
  - a resource management module CR allocating

channels via physical links.

In practice, the signaling module of a switch implements the call protocol which enables it to communicate with another switch.

5       The call control module CA is the core of the system. It is an automaton which creates a process for each type of call received.

10       In practice, the call control module creates a process to handle the call when a line goes to the off-hook condition for a telephone call.

To this end, a generic process (also referred to as a program) is provided in the module and is adapted to create another process to handle the call.

15       As there are several signaling standards, the same equipment can include different signaling modules conforming to different signaling standards.

20       The above architecture is shown diagrammatically in Figure 2. Signaling modules S1, S2, S3 conforming to the three standards that exist at present are installed in a switch SW2 and connected to the core, i.e. to the call handling module CA.

25       This problem is relatively new, but is becoming more difficult to solve because new operators can come into play and because it may be desirable to modify existing standards.

Accordingly, each time that a new standard appears, the equipment must evolve to take account of it.

#### OBJECT AND SUMMARY OF THE INVENTION

30       The object of the invention is to reduce the impact of new signaling on call control and to that end to render call control as autonomous as possible.

35       For example, in PNII, when the call control module sends a request, the request can be accepted before the dialed number is analyzed, whereas in B-ISUP the request is not accepted until the dialed number has been analyzed.

The present invention provides a solution by

proposing an architecture that can be adapted to new standards or that can easily cause the existing standards to evolve.

The invention applies in particular to  
5 2M-144 Mbit/s broadband transmission (ATM, video) but also to narrowband (64 kbit/s) transmission.

The invention provides a generic call control module CA capable of processing requests common to the various standards and dedicated modules or components  
10 capable of processing requests specific to each standard in order to reduce the impact of new signaling on the call control module in order to render it as autonomous as possible.

The invention provides equipment including a  
15 service unit wherein the service unit includes a driver core and modules connected to said core and adapted to process signaling and wherein said core (20) includes:

- receiving means for receiving signaling messages from one or more signaling networks, and
- 20 - sending means for sending said signaling messages to said modules in accordance with a predetermined rule.

In one embodiment of the invention, the core includes means for processing certain signaling messages.

The means for receiving signaling messages include  
25 a high-level interface adapted to provide access to the core for processing of standard signaling messages by the core.

The means for receiving signaling messages include a low-level interface adapted to provide access to the  
30 module adapted to process a received specific signaling message.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the invention will become clearly apparent on reading the following  
35 description, which is given by way of non-limiting example only and with reference to the drawings, in which:

- Figure 1 is a block diagram of a telecommunications network,

- Figure 2 is a diagram of a prior art equipment architecture, and

5       - Figure 3 is a diagram of a telecommunications equipment architecture of the invention.

#### MORE DETAILED DESCRIPTION

For simplicity, the embodiment described hereinafter is an architecture with two signaling  
10 standards corresponding to signaling networks 1 and 2 and signaling modules S1 and S2. Of course, the invention applies with advantage to situations in which there are more than two signaling standards, in concrete terms signaling networks 1 to n and signaling modules S1 to Sn.

15       The telecommunications equipment EQ provides the required service or services on receiving messages from any one of signaling networks 1 to n.

To this end, the equipment includes signaling modules S1-S2 capable of receiving signals from  
20 corresponding signaling modules of equipments EQ, not shown.

Each module S1, S2 holds the signaling information of the corresponding standard 1, 2 in a respective logic unit SIG1, SIG2. Each unit is connected to an adapter,  
25 namely an adapter A1 for the unit SIG1 and an adapter A2 for the unit SIG2, and, for the purposes of dialogue with the service unit CA, which in practice is a call control module, the adapters can convert requests conforming to each standard (or a new standard) into standard requests.

30       Because the dialogue with the service unit CA is standardized, the adapter interfaces A1, A2 are used for the dialogue. They are in practice logic interfaces enabling presentation (as symbolized by links L1) of all calls to the service unit CA in the same format, namely  
35 the standard dialogue format, regardless of the nature of the signaling and whether the signaling corresponds to a new standard or not.

The links L2 shown in dashed line in Figure 3 correspond to "hook" functions present in the service unit CA for addressing specific functions (for example generic functions, a function pointer).

5       The generic requests L1 are managed by a particular high-level generic interface I1 and the "hook" functions L2 are managed by a particular low-level interface I2 that also provides access to the specific modules SP1, SP2 of the unit CA if specific requests arrive (such  
10       requests being tied to a new standard and not conforming to a generic formulation that can be processed by the generic call management driver core NO).

The interfaces I1 and I2 for dialogue with the service unit exist and consequently are already defined.

15       In practice, 80% of requirements common to all the standards can be covered by the interface I1 and processed by the core NO, and requests that do not conform to a generic formulation are wrapped in the standard CA unit dialogue format by the adapters A1 and  
20       A2 so that they can be recognized by the interface I2 and processed by the appropriate specific module SP1 or SP2. The appropriate specific module can be determined by applying predetermined rules. These rules can simply consist of determining the standard to which the request  
25       conforms.

The core NO is therefore adapted to process all generic requests common to the various standards.

30       The specific modules SP1, SP2 each implement specific features corresponding to the evolution of an existing standard or a new standard outside the generic framework.

## CLAIMS

1. Telecommunications equipment including a service unit adapted to communicate with one or more signaling networks, wherein said service unit includes a driver  
5 core and modules connected to said core and adapted to process said specific requests and wherein said core includes:

- receiving means for receiving signaling messages corresponding to generic or specific requests,
- 10 - sending means for sending specific requests to said modules in accordance with a predetermined rule, and
- processing means for processing said generic requests.

2. Equipment according to claim 1, wherein said  
15 receiving means include:

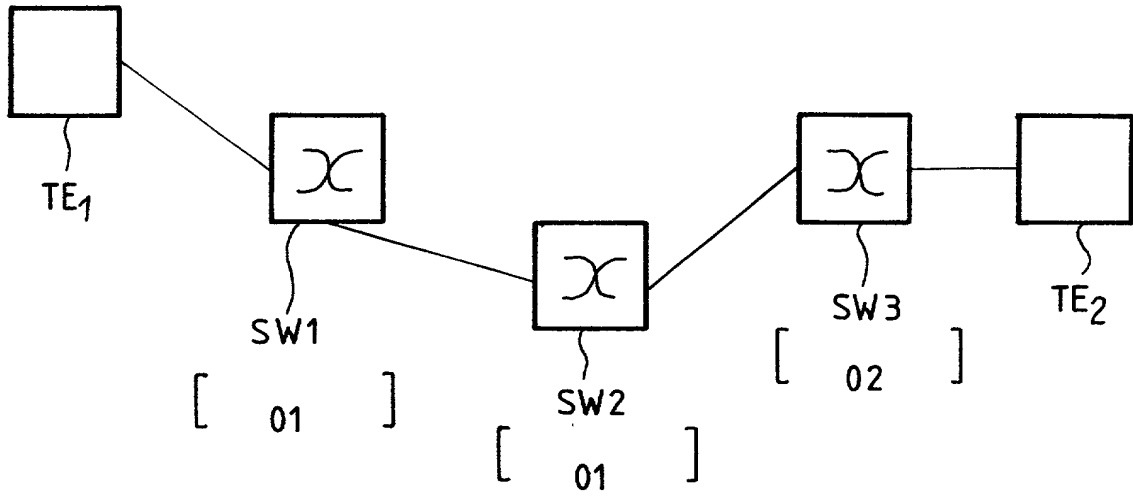
- a high-level interface for receiving signaling messages corresponding to generic requests from one or more signaling networks, and
- a low-level interface for receiving signaling  
20 messages corresponding to specific requests from one or more signaling networks.

5

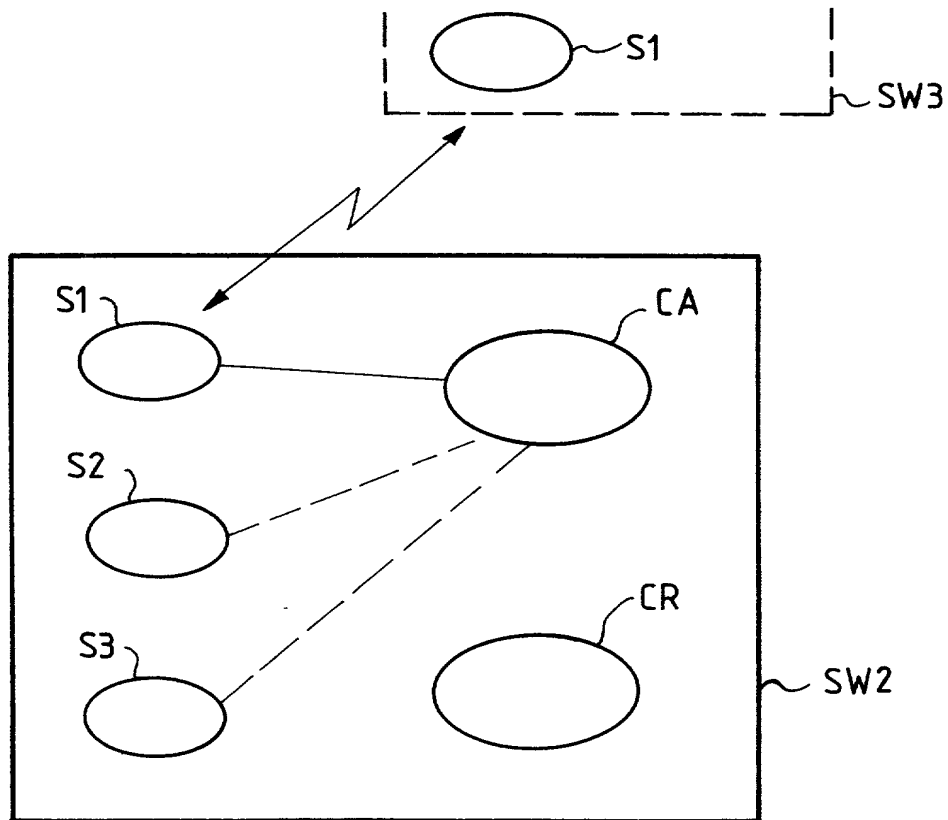
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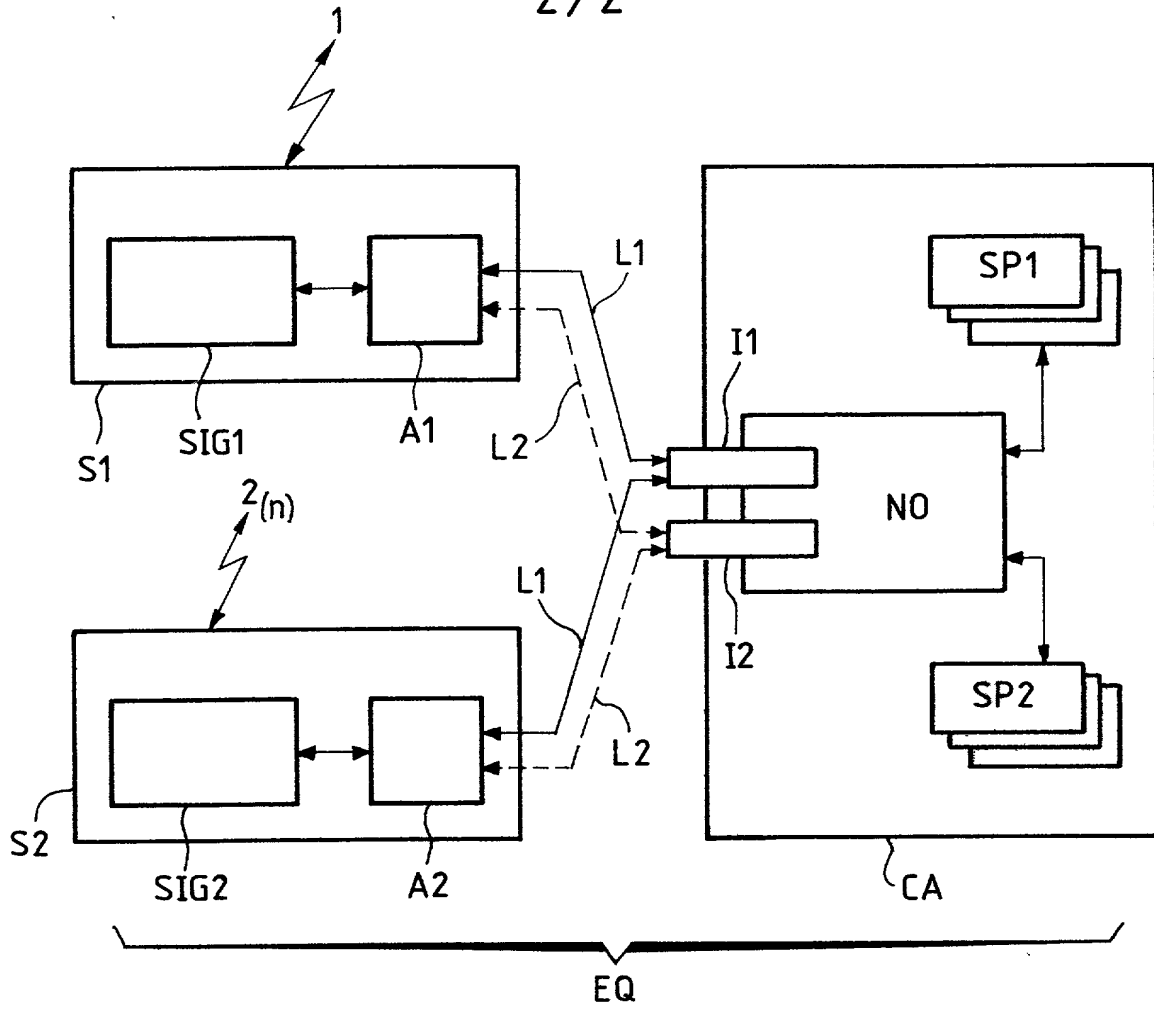
- sending means for sending said signaling messages to said modules in accordance with a predetermined rule.

FIG\_1



FIG\_2





FIG\_3

## Declaration and Power of Attorney for Patent Application

### Déclaration et Pouvoirs pour Demande de Brevet

#### French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention de la description identifiée par le numéro de référence

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s) for which priority is claimed

Demande(s) de brevet étrangère(s) antérieure(s) dont la priorité est revendiquée

(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)
99 13 498	FRANCE	28 OCTOBER 1999

Prior foreign applications for which priority is not claimed

Demande(s) de brevet étrangères antérieure(s) dont la priorité n'est pas revendiquée

(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention in the specification identified by Docket No.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

## French Language Declaration

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

\_\_\_\_\_  
(Application No.)  
(No de demande)

\_\_\_\_\_  
(Filing Date)  
(Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

\_\_\_\_\_  
(Application No.)  
(NO de demande)

\_\_\_\_\_  
(Filing Date)  
(Date de dépôt)

\_\_\_\_\_  
(Status)(patented, pending, abandoned)  
(Statut)(breveté, en cours d'examen, abandonné)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## French Language Declaration


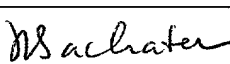
POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

John H. Mion, Reg. No. 18,879; Thomas J. Macpeak, Reg. No. 19,292; Robert J. Seas, Jr., Reg. No. 21,092; Darryl Mexic, Reg. No. 23,063; Robert V. Sloan, Reg. No. 22,775; Peter D. Olexy, Reg. No. 24,513; J. Frank Osha, Reg. No. 24,625; Waddell A. Biggart, Reg. No. 24,861; Louis Gubinsky, Reg. No. 24,835; Neil B. Siegel, Reg. No. 25,200; David J. Cushing, Reg. No. 28,703; John R. Inge, Reg. No. 26,916; Joseph J. Ruch, Jr., Reg. No. 26,577; Sheldon I. Landsman, Reg. No. 25,430; Richard C. Turner, Reg. No. 29,710; Howard L. Bernstein, Reg. No. 25,665; Alan J. Kasper, Reg. No. 25,426; Kenneth J. Burchfiel, Reg. No. 31,333; Gordon Kit, Reg. No. 30,764; Susan J. Mack, Reg. No. 30,951; Frank L. Bernstein, Reg. No. 31,484; Mark Boland, Reg. No. 32,197; William H. Mandir, Reg. No. 32,156; Scott M. Daniels, Reg. No. 32,562; Brian W. Hannon, Reg. No. 32,778; Abraham J. Rosner, Reg. No. 33,276; Bruce E. Kramer, Reg. No. 33,725; Paul F. Neils, Reg. No. 33,102; and Brett S. Sylvester, Reg. No. 32,765; and Robert M. Masters, Reg. No. 35,603.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

Adresser toute correspondance à:

Send Correspondence to:  
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Nom complet de l'unique ou premier inventeur	Full name of sole or first inventor (First Middle Last) <b>Olivier WALTER</b>
Signature de l'inventeur	Inventor's signature  Date <b>20.08.2000</b>
Domicile	Residence Résidence des Lys 102 Avenue des Etats-Unis 78000 VERSAILLES FRANCE
Nationalité	Citizenship French
Adresse postale	Post Office Address VERSAILLES - FRANCE
Nom complet du second co-inventeur, le cas échéant	Full name of second joint inventor, if any (First Middle Last) <b>Hélène BACHATENE</b>
Signature du second inventeur	Second inventor's signature  Date <b>20.08.2000</b>
Domicile	Residence 19 rue Charles FOURIER 75013 PARIS FRANCE
Nationalité	Citizenship French
Adresse postale	Post Office Address PARIS - FRANCE

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)